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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
RAMIREZ, DELIA M

ART UNIT	PAPER NUMBER
1652	

DATE MAILED: 12/17/2002 14

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No	Applicant(s)	
	09/624,670	MUKERJI ET AL.	
	Examiner	Art Unit	
	Delia M. Ramirez	1652	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 October 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-49* is/are pending in the application.

4a) Of the above claim(s) *6,7,25-46 and 49* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,8-22,47 and 48* is/are rejected.

7)☒ Claim(s) *23 and 24* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Status of the Application

Claims 1-49 are pending.

In response to a supplemental restriction submitted in Paper No. 12, mailed on 9/24/2002, Applicants have further elected with traverse Group IA, claims 1-5, 8-24, 47-48 drawn to the polynucleotide of SEQ ID NO: 5 and 6, vectors and host cells comprising said polynucleotide, and method of use of said polynucleotide, in Paper No. 13, filed on 10/22/2002.

Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 6-7, 25-46 and 49 are withdrawn from further consideration by the Examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Specification

1. The use of trademarks has been noted throughout this application. See for example, "Clontech", "Perkin-Elmer", "Invitrogen", etc. They should be capitalized wherever they appear and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the trademarks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Priority

2. Acknowledgment is made of a claim for domestic priority under 35 U.S.C. 120 or 121 to US application No. 09/379095 filed on 8/23/1999 and US application No. 09/145828 filed on 9/2/1998.

3. It is noted that since the polynucleotides of SEQ ID NO: 5 and SEQ ID NO: 6 have not been disclosed in US application No. 09/379095 or US application No. 09/145828, the filing date of the instant application, 7/24/2000, has been used for prior art purposes.

Information Disclosure Statement

4. Acknowledgement is made of the information disclosure statement (IDS) submitted on 11/8/2000. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

5. The formal drawings submitted on 1/11/2002 have been reviewed and are approved by a draftsperson under 37 CFR 1.84 or 1.152.

Claim Objections

6. Claims 1-5 and 47-48 are objected to because of the recitation of "an isolated nucleotide sequence" for the following reasons. As known in the art, a sequence is a graphical representation of how nucleotides/amino acids are arranged in a polynucleotide or polypeptide. It is analogous to a chemical formula. It is assumed that the intended claims are drawn to a

polynucleotide (nucleic acid molecule) and not to a graphical representation of a molecule. Therefore, it is suggested that the claims be amended to clearly state that what is being claimed is a polynucleotide or a nucleic acid molecule. For example, the claims can be amended to recite "an isolated nucleic acid (or polynucleotide) wherein said nucleic acid comprises a nucleotide sequence ...". or similar when appropriate. Applicants are reminded that other parts of the claims and/or dependent claims may have to be amended accordingly for consistency and clarity. Appropriate correction is required.

7. Claims 4-5 are objected to because of the recitation of "wherein said sequence is derived from ...". As indicated above, a sequence is a graphical representation of a molecule, therefore, it is the polynucleotide and not the sequence what is derived from the organism recited. It is suggested that the claims be amended to recite "the polynucleotide (or nucleic acid) of....derived from...". or similar. Appropriate correction is required.

8. Claims 8 and 15 are objected to because of the recitation of "isolating a nucleotide sequence" and/or "sequence operably linked". As indicated above, a sequence is a graphical representation of a molecule, therefore what is isolated is a nucleic acid and not the sequence. Similarly, what is linked to a promoter is a nucleic acid. It is suggested that the claims be amended to recite "isolating a polynucleotide comprising the sequence of SEQ ID NO: ..." and/or "polynucleotide operably linked" or similar. Appropriate correction is required.

9. Claim 15 is objected to because of the following informalities: for clarity, it is suggested that the terms "a)" and "b)" be deleted since the vector does not comprise a polynucleotide operably linked to a promoter and a promoter but rather a polynucleotide operably linked to a promoter. Appropriate correction is required.

10. Claim 23 is objected to because of the recitation of "wherein expression of said nucleotide sequence". As indicated above, a sequence is a graphical representation of a molecule, therefore it is the polynucleotide which is being expressed and not the sequence. It is suggested that the claim be amended to recite "wherein expression of the polynucleotide (or nucleic acid) of said vector...." or similar. Appropriate correction is required.

11. Claim 23 is objected to because of the following informalities: for clarity, it is suggested that the term "said vector of claim 15" be replaced with "the vector of claim 15. Appropriate correction is required.

12. Claim 24 is objected to because of the recitation of "AA, ADA, GLA and STA". Abbreviations unless otherwise obvious and/or commonly used in the art, should not be recited in the claims without at least once reciting the entire phrase for which the abbreviation is used. Appropriate correction is required.

Claim Rejections - 35 USC § 112, Second Paragraph

13. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

14. Claims 1-5 and 47-48 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

15. Claims 1 and 47 (claims 2-5 and 48 dependent thereon) are indefinite in the recitation of "sequence corresponding to or complementary to at least about 35% of the nucleotide sequence

comprising SEQ ID NO: #" for the following reasons. As indicated above, it is assumed that Applicant's intended subject matter is a polynucleotide and not a sequence.

The term "complementary" is indefinite because it is unclear which "complements" are encompassed by the claims. Fragments of any size which are complementary to the polynucleotides claimed can be considered as "complements". Applicants have not define the term "complement", as it relates to size, in the specification either. If applicants wish to claim the entire complement polynucleotide, it is suggested that the term "complementary" be replaced with "completely complementary" or "complement" be replaced with "complete complement".

In addition, the term "at least about" is indefinite because it renders the claims vague and confusing. The use of this language is contradictory because the term "about" can be interpreted as "less than" whereas the term "at least" is synonym of "no less than". Applicant is reminded that the use of the term "about" only would also render the claim indefinite because the term "about" can be interpreted as both more and less.

Furthermore, the claims is indefinite in the recitation of the term "sequence corresponding to... at least about 35% of the nucleotide sequence of the nucleotide sequence comprising SEQ ID NO: #" because, as written, one cannot establish if the polynucleotide claimed (it is assumed that a polynucleotide is being claimed) is one which has a length of at least 35% the length of the polynucleotide of SEQ ID NO: # or if the term "35%" refers to sequence identity or sequence similarity. If the % recited in the claim refers to sequence identity or sequence similarity, it is suggested that the claim be amended to recite more clear and unambiguous language, such as "an isolated nucleic acid molecule (polynucleotide) wherein said nucleic acid molecule comprises a nucleotide sequence which is at least #% identical

(homologous/similar) to the sequence set forth in SEQ ID NO: #" or similar. For examination purposes, claims 1 and 47 have been interpreted as being drawn to a polynucleotide or a complete complement thereof wherein said polynucleotide comprises a nucleotide sequence which is at least 35% homologous to the sequence set forth in SEQ ID NO: #. Correction is required.

Claim Rejections - 35 USC § 112, First Paragraph

16. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

17. Claims 1, 4-5 and 47 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 1, 4-5 and 47 are drawn to genera of polynucleotides of any function which are at least 35% sequence homologous to the polynucleotides of SEQ ID NO: 5 or 6. See rejections under 35 USC 112, second paragraph for claim interpretation. While the specification discloses the structure and function of the polynucleotides of SEQ ID NO: 5 and 6, there is no disclosure of the function of other polynucleotides as encompassed by the claims. In addition, there is no disclosure of the critical structural elements a polynucleotide having at least 35% sequence homology to the polynucleotides of SEQ ID NO: 5 or 6 should have to display elongase activity.

While one could argue that the polynucleotides of the instant claims are adequately described since one can isolate polynucleotides encoding elongases by sequence comparison using DNA/amino acid structures disclosed in the instant application or the prior art, the state of the art teaches that sequence comparison alone should not be used to determine function and that small amino acid changes can drastically change the function of a polypeptide. Bork (Genome Research, 10:398-400, 2000) teaches protein function is context dependent, and both molecular and cellular aspects must be considered (page 398). Van de Loo et al. (Proc. Natl. Acad. Sci. 92:6743-6747, 1995) teaches that polypeptides of approximately 67% homology to a desaturase from *Arabidopsis* where found to be hydroxylases once tested for activity. Seffernick et al. (J. Bacteriol. 183(8):2405-2410, 2001) teaches that two naturally occurring Pseudomonas enzymes having 98% amino acid sequence identity catalyze two different reactions: deamination and dehalogenation, therefore having different function. Broun et al. (Science 282:1315-1317, 1998) teaches that as few as four amino acid substitutions can convert an oleate 12-desaturase into a hydrolase and as few as six amino acid substitutions can transform a hydrolase to a desaturase. The specification only discloses a few species of the genera which is insufficient to put one of ordinary skill in the art in possession of all attributes and features of all species within the claimed genera. Thus, one skilled in the art cannot reasonably conclude that Applicant had possession of the claimed invention at the time the instant application was filed.

18. Claims 1, 3-5, 47 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the polynucleotide of SEQ ID NO: 5 or 6, does not reasonably provide enablement for any polynucleotide of any function which is at least 35%

sequence homologous to the polynucleotides of SEQ ID NO: 5 or 6. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

The criteria for undue experimentation, summarized in *re Wands*, 8, USPQ2nd 1400 (Fed. Cir. 1988) are: 1) quantity of experimentation necessary, 2) the amount of direction or guidance presented, 3) the presence and absence of working examples, 4) the nature of the invention, 5) the state of prior art, 6) the relative skill of those in the art, 7) the predictability or unpredictability of the art, and 8) the breath of the claims.

The scope of enablement is not commensurate with the enablement provided in regard to the large number of polynucleotides of unknown function encompassed by the claims. As indicated above, while the structure and function of the polynucleotides of SEQ ID NO: 5 and 6 has been disclosed, there is no disclosure of the function of other polynucleotides having at least 35% sequence homology to the polynucleotides of SEQ ID NO: 5 or 6. In addition, there is no disclosure of the critical structural elements required for a polynucleotide to encode a polypeptide having elongase function or which nucleotides can be deleted and/or substituted in the polynucleotides of SEQ ID NO: 5 or 6 to render polynucleotides having 35% sequence homology and still encode elongases. While one could argue that polynucleotides encoding polypeptides having elongase function can be isolated by sequence homology, the state of the art teaches the unpredictability of assigning function based on sequence comparison. See the teachings of Bork (Genome Research, 10:398-400, 2000), Broun et al. (Science 282:1315-1317, 1998), Van de Loo et al. (Proc. Natl. Acad. Sci. 92:6743-6747, 1995) and Seffernick et al. (J. Bacteriol. 183(8):2405-2410, 2001) already discussed. Since the amino acid structure

determines the function of a protein, one of skill in the art would require some knowledge or guidance as to how structure relates to function to isolate polynucleotides encoding elongases. Therefore, due to the lack of relevant examples, the amount of information provided, the lack of knowledge about the critical structural elements required to display elongase activity, and the unpredictability of the prior art in regard to function based on homology, one of ordinary skill in the art would have to go through the burden of undue experimentation in order to (1) screen and isolate polynucleotides with encode elongases or (2) screen and determine the function of the polypeptides encoded by polynucleotides having at least 35% sequence homology to the polynucleotides of SEQ ID NO: 5 or 6. Thus, Applicant has not provided sufficient guidance to enable one of ordinary skill in the art to make and use the invention in a manner reasonably correlated with the scope of the claims.

Claim Rejections - 35 USC § 102

> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

19. Claims 1-5, 8-9, 11-17, 19-22 and 47 are rejected under 35 U.S.C. 102(a) as being anticipated by Tvrdik et al. (J. Cell Biol. 149(3):707-717, May 2000; GenBank accession number AF170908). Tvrdik et al. teaches a polynucleotide isolated from mouse which comprises the entire sequence of SEQ ID NO: 5 (see attached alignment). The polynucleotide of Tvrdik et al. is also 38.3% sequence homologous to the polynucleotide of SEQ ID NO: 6. Tvrdik et al. also teaches vectors and host cells comprising the polynucleotide (page 709, first column, Yeast strains and culture conditions, Yeast plasmids and DNA manipulations) as well as the insertion

of a vector comprising said polynucleotide in yeast mutant cells to produce the corresponding protein (page 112, Complementation of yeast mutants with homologous mouse genes).

Claims 1-3 are partially directed to a polynucleotide comprising the nucleotide sequence of SEQ ID NO: 5. Claims 4-5 add the limitation that the polynucleotide be isolated from a mammal or a mouse. Claim 8 is directed to a method of producing the polypeptide encoded by the polynucleotide of SEQ ID NO: 5 wherein a vector comprising said polynucleotide is introduced in a host cell to produce the corresponding polypeptide. Claims 9, 11-17, 19-22 are directed to the method of claim 8 wherein a eukaryotic, fungal, S. cerevisiae or yeast cell is used. Claim 47 is partially drawn to a polynucleotide which is at least 35% sequence homologous to the polynucleotide of SEQ ID NO: 6. Therefore, the teachings of Tvrdik et al. anticipate the claims as written.

20. Claims 1, 4-5, and 47 are rejected under 35 U.S.C. 102(b) as being anticipated by Ishizaka et al. (EPO publication number EP 0285405, October 5, 1988; GenEMBL accession number I05465). Ishizaka et al. teaches a mouse polynucleotide which is 95.2% sequence homologous to the polynucleotide of SEQ ID NO: 6 and 37.6% sequence homologous to the polynucleotide of SEQ ID NO: 5. See attached alignments. The polynucleotide of Ishizaka et al. encodes a glycosylation inhibiting factor.

Claims 1, 4-5 are partially drawn to a polynucleotide which is at least 35% sequence homologous to the polynucleotide of SEQ ID NO: 5 isolated from a mammal or a mouse. Claim 47 is partially directed to a polynucleotide which is at least 35% sequence homologous to the

polynucleotide of SEQ ID NO: 6. Therefore, the teachings of Ishizaka et al. anticipate the claims as written.

Claim Rejections - 35 USC § 103

21. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

22. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

23. Claims 10 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tvrdik et al. (J. Cell Biol. 149(3):707-717, May 2000; GenBank accession number AF170908). The teachings of Tvrdik et al. have been discussed above. Tvrdik et al. does not teach a bacterial host cell comprising a vector which contains the polynucleotide of SEQ ID NO: 5 or a method for producing an elongase in a bacterial host.

Claim 10 is partially directed to a method for producing an elongase by transforming an E. coli cell with a vector comprising the polynucleotide of SEQ ID NO: 5 and culturing said

cell. Claim 18 is partially directed to an E. coli host cell comprising a vector which contains the polynucleotide of SEQ ID NO: 5.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to transform an E. coli host cell with a vector comprising the polynucleotide of Tvrdik et al. and use it in a method to produce the corresponding polypeptide. A person of ordinary skill in the art is motivated to transform a bacterial host cell, such as E. coli, with a vector comprising the polynucleotide of Tvrdik et al. for the benefit of recombinantly producing the corresponding protein in large amounts with a host cell which is easy to transform and culture. One of ordinary skill in the art has a reasonable expectation of success at transforming an E. coli cell with a vector comprising the polynucleotide of Tvrdik et al. and producing the corresponding protein with such cell since Tvrdik et al. teaches protein production with yeast cells and E. coli is a host cell which is well known and widely used in the art for recombinant protein production. Therefore, the invention as a whole would have been prima facie obvious to a person of ordinary skill in the art at the time the invention was made.

24. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tvrdik et al. (J. Cell Biol. 149(3):707-717, May 2000; GenBank accession number AF170908) in view of Lassner et al. (The Plant Cell 8:281-292, 1996; cited in the IDS). The teachings of Tvrdik et al. have been discussed above. In addition, Tvrdik et al. teaches fatty acid chain elongation in brown fat microsomes (page 709, second column, Preparation of microsomes and fatty acid elongation assay; page 715, Table II). Lassner et al. teaches the construction of a transgenic jojoba plant wherein the DNA of β-ketoacyl-CoA synthase is expressed to increase the levels of

very long chain fatty acids (VLCFA) in seed oil composition (page 281, Abstract). β-ketoacyl-CoA synthase is an enzyme which catalyzes one of the reactions in the biosynthetic pathway of VLCFAs. Neither Tvrdik et al. nor Lassner et al. teach a plant cell or a plant comprising a vector which contains the polynucleotide of SEQ ID NO: 5.

Claims 23 and 24 are directed to a plant cell or a plant comprising a vector which contains the polynucleotide of SEQ ID NO: 5, wherein expression of the polynucleotide results in the production of polyunsaturated fatty acids.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to transform a plant cell or a plant, as taught by Lassner et al., with a vector comprising the polynucleotide of Tvrdik et al. A person of ordinary skill in the art is motivated to transform a plant cell or a plant with a vector comprising the polynucleotide of Tvrdik et al. for the benefit of recombinantly producing vegetable oils which are richer in specific types of polyunsaturated fatty acids. One of ordinary skill in the art has a reasonable expectation of success at transforming a plant cell or a plant with a vector comprising the polynucleotide of Tvrdik et al. and producing polyunsaturated fatty acids since Lassner et al. teaches the successful production of fatty acids (VLCFA) by constructing a transgenic plant wherein a gene encoding an enzyme involved in fatty acid synthesis is introduced. Therefore, the invention as a whole would have been prima facie obvious to a person of ordinary skill in the art at the time the invention was made.

Double Patenting

25. It is noted that the applications Serial No. 09/849199 and 10/120637 disclose a polynucleotide (SEQ ID NO: 22) which is identical to that of SEQ ID NO: 1 of the instant application. Since applications Serial No. 09/849199 and 10/120637 are not available to the examiner at this time, no determination has been made as to whether or not a double patenting rejection should be applied to the claims of the instant application. If, upon availability of the above application to the examiner, it is determined that there are conflicting claims between applications Serial No. 09/849199 or 10/120637 and the instant application, double patenting will not be considered as new ground(s) of rejection.

Conclusion

26. No claim is in condition for allowance.

27. It is noted that if the references cited by the Examiner are too long, only relevant pages will be enclosed with the instant Action.

28. Applicants are requested to submit a clean copy of the pending claims (including amendments, if any) in future written communications to aid in the examination of this application.

29. Certain papers related to this application may be submitted to Art Unit 1652 by facsimile transmission. The FAX number is (703) 308-4556. The faxing of such papers must conform with the notices published in the Official Gazette, 1156 OG 61 (November 16, 1993) and 1157 OG 94 (December 28, 1993) (see 37 CFR 1.6(d)). NOTE: If Applicant submits a paper by FAX, the original copy should be retained by Applicant or Applicant's representative. NO DUPLICATE

COPIES SHOULD BE SUBMITTED, so as to avoid the processing of duplicate papers in the Office.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Delia M. Ramirez whose telephone number is (703) 306-0288. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Ponnathapura Achutamurthy can be reached on (703) 308-3804. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

Delia M. Ramirez, Ph.D.
Patent Examiner
Art Unit 1652

DR
December 13, 2002

REBECCA E. PROUTY
PRIMARY EXAMINER
1600